

REMARKS

Pursuant to the final Office Action mailed February 26, 2008, which has been carefully considered, Applicants respectfully request reconsideration. To further the prosecution of this application, each of the issues raised in the Office Action is addressed herein. Claims 10-17 are currently pending, of which Claim 10 is an independent claim. The application as presented is believed to be in allowable condition.

A. Claim Rejections under 35 U.S.C. §102(e)

Claims 10-17 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,991,402 (*Burkhart*). Applicants respectfully traverse.

The present invention, as defined by independent Claim 10, is directed to a method for constructing an intermediate wall, having an upper fixing type structure, of a three arch excavated tunnel, in which lining concrete is cast and fixed to an upper side of the intermediate wall, a lower portion of the intermediate wall has a small thickness reduced as much as the thickness of the lining concrete, and the lower portion of the intermediate wall is one type selected from the group consisting of a column type, an arch type and an intermediate wall type.

To support a rejection of Claims 10-17 under 35 U.S.C. §102(e), page 2 of the Office Action indicates that *Burkhart* discloses:

a variety of tunneling structures formed from concrete, the structures including a drainage system ([inlet ports] 8 and [side inlet ports] 9), an upper portion of the wall using a drain board (the perforated top/roof member) and a waterproof layer (col. 20, lines 56 through 57), and further including a collection tank and drain pipes.

However, *Burkhardt* does not disclose, and the Office Action does not contend that *Burkhardt* discloses, “an upper fixing type structure, of a three arch excavated tunnel, in which lining concrete is cast and fixed to an upper side of the intermediate wall,” (emphasis added) as required by Claim 10. Rather, *Burkhardt* simply discloses precast modularized concrete structures that have “a substantially horizontally disposed deck portion and vertically disposed side portions” that can be placed side-by-side such that a portion of the deck portion on one of the modules rests on top of a vertically disposed side portion of another module. (*Burkhardt* Abstract; Figures 1-13; col. 6, lines 17-20).

Applicants respectfully note that in order to support a claim of *prima facie* anticipation, a single reference must teach or enable each of the claimed elements as arranged in the claim interpreted by one of ordinary skill in the art. However, nothing in the art of record discloses each of the features recited in Claim 10.

The intermediate wall of the present invention advantageously serves as a supporting member so that the distance between two main tunnels can be reduced in contrast to conventional tunnels. In addition, the claimed invention has the advantages of reducing an area of a site for subways, trains, or roads so that the economic efficiency of construction is improved, solving problems caused by conventional two arch tunnels, and increasing the stability of the tunnel structure.

Applicants respectively submit that Claims 11-17, which ultimately depend from Claim 10, are patentable over the art of record by virtue of their dependence. Further, Applicants submit that Claims 11-17 define additional patentable subject matter in their own right.

As to Claim 12, *Burkhardt* does not disclose filling a portion of the intermediate wall with a grouting agent or that an upper portion of the intermediate wall is drained such that water is induced toward sidewalls of the intermediate wall and then flows toward the inside of the

intermediate wall along a collection tank stopper. Rather, *Burkhart* simply discloses inlet ports that drain directly into the cavity formed by the precast modules so that the flow of water is unrestricted.

As to Claim 13, *Burkhart* does not disclose, and the Office Action does not contend that *Burkhart* discloses, a "steel plate girder type intermediate wall in which the intermediate wall is drained such that water from the intermediate wall sequentially flows toward the outside of the intermediate wall." Rather, *Burkhart* simply discloses precast concrete modules having a substantially horizontally disposed deck portion and vertically disposed side portions that have inlet ports for draining directly into the cavity formed by the modules.

As to Claim 15, *Burkhart* does not disclose that "designated portions of lock bolts having a length corresponding to length joints are exposed in advance and then buried into the head of the intermediate wall when the lock bolts are screwed into the top portion of the intermediate wall." Rather, *Burkhart* simply discloses placing precast concrete modules together and sealing the joints with tape.

As to Claim 16, *Burkhart* does not disclose that "studs are installed in advance in a head of a steel plate girder type or precast concrete type intermediate wall" or that "concrete is cast into spaces formed by exposing lock bolts, and the spaces are filled with mortar or milk grouting agent." At no point does *Burkhart* disclose, and the Office Action does not contend that *Burkhart* discloses, the above mentioned features.

As to Claim 17, *Burkhart* does not disclose that "pipe holders and utility pipes are installed in the steel plate girder type or precast concrete type intermediate wall, thus allowing cables for communication and electrical wires to pass through the intermediate wall." Rather, *Burkhart* discloses that the modular assemblies are configured to "avoid existing underground obstructions such as utilities, pipelines . . ." (col.4 lines 18-21; see also col. 13, lines 41-44).

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Therefore, it is respectfully requested that the rejection of Claims 10-17 under 35 U.S.C. §102 be reconsidered and withdrawn.

CONCLUSION

Favorable reconsideration of Claims 10-17 and allowance of pending Claims 10-17 are solicited.

In view of the foregoing remarks, the subject application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this Reply, that the application is not in condition for allowance, the Examiner is requested to call the Applicants' attorney at the telephone number provided below to discuss any outstanding issues.

Respectfully submitted,

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